

PATENT APPLICATION

BE IT KNOWN, that Thomas E. Coverstone has invented a new and useful improvement in:

**SYSTEM AND METHOD FOR WIRELESS TELECOMMUNICATIONS
NETWORK**

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SYSTEM AND METHOD FOR WIRELESS TELECOMMUNICATIONS NETWORK

RELATED APPLICATIONS

This patent application claims the benefit of U.S. Provisional Patent Application Serial No. 60/255,331 filed on December 13, 2000, and entitled System and Method for Wireless Telecommunications Network, which is incorporated by reference herein in its entirety as though set out in full.

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to wireless telecommunications network. More particularly, the present invention relates to a wireless telecommunications network wherein information relating to a communication device is stored and processed.

Brief Description of the Related Art

Typical wireless networks allow for two way telecommunications between multiple users utilizing communication devices; such as handsets or PDAs communicating with at least one base station. Advances in wireless telecommunications will soon provide a user location feature by locating a wireless communication device, for example, during an emergency. Such a feature typically utilizes a Global Positioning Satellite (GPS)

system which has the capability of tracking the movements of each specific wireless communication device, such as a cellular telephone handset or PDA and its user. As GPS technology improves, the specific location of the cellular telephone handset and its user will be accurate within a few feet, or even less.

SUMMARY OF THE INVENTION

A first aspect of the invention is related to a telecommunications network that includes a communication device, a tracking system for tracking the communication device, and a processing device that processes information received directly or indirectly from the tracking system.

Another aspect of the invention is related to a wireless telecommunications system that includes a wireless communication device being capable of communicating with an existing position location system, and a system for storing and processing location positions of the wireless communication device. In another embodiment of this aspect of the invention, the system for storing location positions includes at least one database. In yet another embodiment of this aspect of the invention, the system stores and processes additional information relating to the wireless communication device, such as transactions made with or relating to the wireless the communication device.

Yet another aspect of the invention is related to a wireless telecommunications system includes a wireless communication device including a location position feature, the wireless communication device is capable of communicating with an existing position location system, and a system for storing and processing location positions of the wireless communication device.

Another aspect of the invention is related to a wireless telecommunications system that includes a wireless communication device being capable of communicating with an existing position location system, a memory device for storing position locations of the wireless communication device, and a processor for processing information from the memory device.

Yet another aspect of the invention is related to a wireless telecommunications system capable of communicating with an existing wireless communication device that is capable of communicating with an existing position location system. The system includes a memory device for storing location positions of the wireless communication device, and a processing system for processing information from the memory device and relating to the stored location positions of the wireless communication device.

Another aspect of the invention relates to a system that is used with an existing wireless communication device that is capable of communicating with an existing position location system, the system includes a memory device for storing position

locations of the wireless communication device and a processor for processing information from the memory device.

Yet another aspect of the invention relates to a system that is used with at least one wireless communication device that is capable of communicating with a position location system, the system includes a memory device for storing position locations of the wireless communication device and a processor for determining trends from the position locations stored in the memory device.

Another aspect of the invention relates to a system that is used with a wireless communication device that is capable of communicating with a position location system, the system includes a memory device for storing transactions made relating to the wireless communication device and a processor for determining trends from the transactions stored in the memory device.

Yet another aspect of the invention relates to a system that is used with a wireless communication device and a position location system, the wireless communication device being capable of communicating with the position location system. The system includes a memory device for storing position locations of the wireless communication device and for storing transactions made relating to the wireless communication device and a processor for determining trends by recalling stored information from the memory device and processing the recalled information.

Another aspect of the invention relates to a wireless communication system that is used with a wireless communication device and a position location system, the wireless communication device being capable of communicating with the position location system. The wireless communication system includes a memory device for storing position locations of the wireless communication device and for storing transactions made relating to the wireless communication device, a processor for determining trends by recalling stored information from the memory device and processing the recalled information, and a transmitter for transmitting targeted broadcasts to the wireless communication device based on the current location of the communication device.

Still yet another aspect of the invention relates to a wireless communication system that is used with a wireless communication device and a position location system, the wireless communication device being capable of communicating with the position location system. The wireless communication system includes a memory device for storing position locations of the wireless communication device and for storing transactions made relating to the wireless communication device, a processor for determining trends by recalling stored information from the memory device and processing the recalled information, and a transmitter for transmitting targeted broadcasts to the wireless communication device based on the trends of the communication device.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be described in greater detail with reference to the preferred embodiments illustrated in the accompanying drawings, in which like elements bear like reference numerals, and wherein:

FIG. 1 illustrates a schematic representation illustrating an exemplary wireless telecommunications network according to the present invention;

FIG. 2 is a block diagram illustrating an example of a computer system used to implement the present invention;

FIG. 3 is a block diagram illustrating an example of a system configuration used to implement the present invention;

FIG. 4 is a flow chart illustrating a communication device user preselection process according to the present invention;

FIG. 5 is a flow chart illustrating the a communication device user usage pattern as tracked according to the present invention; and

FIG. 6 is a flow chart illustrating the tracking and usage analysis of the communication device as well as the resulting targeted broadcasting to the communication device according to the present invention.

DETAILED DESCRIPTION AND PREFERRED EMBODIMENTS

FIG. 1 illustrates an exemplary GPS system with a wireless device, such as a cellular wireless handset or PDA device 10 in communication with a GPS system 12, wherein the system 12 typically includes a plurality of satellites 14, 16 and 18, and a ground station 20 with a transmitter and receiver 22. The satellites communicate with the handset 10 and with each other to determine the location of the device 10 and the user. The terms communication device and user may be used interchangeably herein. It will be understood by those skilled in the art that any type of GPS system would work with the present invention. In addition, the GPS system 12 has the capability to identify the communication device 10 by various methods, such as coding the communications from a particular handset to the GPS system.

The GPS system 12 locates and identifies a particular user. The GPS ground station may include a computer system, or the computer system may be independent of the ground station. For example, the computer system may be housed in a separate satellite, a separate ground based system, or may be embedded in at least one of

the satellites, as long as the computer system is in communication with the GPS system via a communication interface.

The components in the telecommunication system may interface utilizing a cellular based system, digital cellular system, GSM (Global System for Mobile communications), PCS (Personal Communication Services), PDC (Personal Digital Cellular), radio communications, satellite communications, or other related systems. Also, the Wireless Application Protocol (WAP) may be utilized as well as the Bluetooth Wireless Technology Standard, or other short wireless standards may be utilized in the present invention.

The computer system, as shown in FIG. 2, may include a display 24, a keyboard 26, input device 28, central processing unit(s) 30, I/O controller 32, disk controller 34, hard drive 36, floppy drive 38, optical drive 40, and a storage device 42. The storage device can be configured as memory or another processor readable medium. Each of the devices communicate over bus 44. The computer is not limited to these generally devices or software since the computer will include other computer devices and/or software based upon the system configuration.

In one example, the computer interfaces with the communication interface via a modem 46, a network card 48 or some other communication mechanism, such as cellular or satellite communications.

FIG. 3 is an example of the system configuration of the server system used to implement the present invention. The server system includes an operating system 50, application software 52, a web server (http server) 54, and a database system 56. The database system 56 may include several databases or files, including preselections, usage, transactions, frequent or frequented routes, responses to broadcasts, or requests for information, or other historical demographics.

As shown in FIG. 4, the user of the communication device makes preselections 58 from a menu. These preselections initially establish a baseline demographic for this particular user of the communication device. At step 60 the user selects a topic to make the preselections, such as food, entertainment, shopping, social, or other interested categories available on the menu. The user may utilize a menu on the communication device itself or the selection process may be Web based. At step 62, the user sets particular profiles of interest in the selected category, such as notify the user by broadcasting to the communication device if a certain event happens. The event may be that the user is in the proximity of a store, restaurant, person, event, or other item selected by the user. At step 64, the user may set certain demographics, such as notify the user if the user is in the proximity of a store, such as within five miles, or within a certain zip code, or city, or some other geographical limitation. At step 66 the user saves the preselections. At step 68 the preselections are stored in memory either in the communication device, or preferably, in the computer system of the telecommunication network.

FIG. 5 illustrates how the user's actions, or inactions are stored in memory to compile, maintain, and update the historical demographics and database relating to the user. At step 70, the user is notified based on preselections made. The user's actions or inactions are stored at step 80 based upon the notification of the preselected event. Other actions or inactions include step 72, where the user requests information based on interests not preselected or based on the user's location. At step 74 the user travels frequent or frequented routes and these actions are stored into memory. At step 76, the user responds to broadcasts from the telecommunication system and the user's actions are stored into memory. At step 78, the user acts independently, such as making a visiting or making a purchase at a store. Purchases by the user are stored when the user utilizes the communication device to make the purchase. Bluetooth technology or other short distance wireless communication standards allow the communication device to make purchases.

In one embodiment of the present invention, a user of a device logs onto the computer system via the device, a land based telephone, a computer, or other communication means via the Internet, land based telephone lines, or other communication devices. The term device and handset are also used interchangeably herein. The user identifies himself or herself by the logging on process and then communicates with the computer system by inputting certain information into computer screens. It will be appreciated that parents will have certain controls available to them to either preselect what their children will have access to at a subsequent log on or will be able to prevent their children to have access to certain material. After the user logs on to the system, the user will be able to determine what communications he or she will receive. For example, the user may select to receive advertisements from certain stores and/restraurants, or select from other categories of interest such as concerts, grocery stores, department stores, specialty stores, libraries, parks, etcetera, so that when the handset is within a certain distance or range from the area of interest, an advertisement or message from the area of interest will be broadcast on the handset, either by voice, ring, or message on the handset screen.

The user also may select that he wishes to receive a message when he is in a certain distance of another person or persons who have the same selected interest. For example, a male looking for a female, who is looking for a male. These examples are not exhaustive of the potential lists of matches that could be preselected on the computer system and then executed when the users are in different environments. Of course, for the communication to be executed by the computer system, all participants must have preselected to receive such communications. For example, in the case people looking for other people, both must have preselected that they were willing to communicate with people of their respective categories. In another embodiment, certain users may not preselect whom they will receive communications from. For example, for users who desire to have a free wireless service, the trade off may be that they cannot screen or preselect who they will receive communications or broadcasts from.

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Another example is the present invention could be used to create a dynamic marketplace for placing orders for advertisements, that are based on availability. For example, if an establishment has an oversupply, broadcasts

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